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The Octocorallia Collected by R/V "Vema" in the Atlantic Ocean

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INTRODUCTION

At the request of Dr. Meredith L. Jones, formerly of the American Museum of Natural History, I have examined the octocorals collected by R/V "Vema" of the Lamont Geological Observatory during the years 1958–1962 in the Atlantic Ocean. Part of the relatively small collection was dredged on the Patagonian Shelf east of Argentina; the rest of the material was obtained from off the coasts of North America and Greenland.

This collection is deposited in the American Museum of Natural History. Glass slides with spicules and anthocodiae mounted in balsam have been retained by the author.

I am greatly indebted to Dr. Jones, now of the United States National Museum, Smithsonian Institution, for entrusting the material to me for study. Dr. Frederick M. Bayer of the Marine Laboratory, University of Miami, kindly read the manuscript.

Once more, I am particularly grateful to my colleagues Mr. W. ter Spill, for his editorial assistance, and Mr. G. J. Vrijmoeth, for his excellent photographs.

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TABLE 1

LOCALITIES OF SAMPLES

Station	Date	Latitude	Longitude	Depths in Meters	General Area
V-15-1	October 29, 1958	31° 54′ N.	79° 05′ W.	413	East coast of Georgia
V-15-102	March 5, 1959	52° 53.3′ S.	65° 35′ W.	108	Patagonian Shelf
V-16-49	August 21, 1960	60° 10′ N.	47° 10′ W.	274	South point of Greenland
V-16-52	August 29, 1960	55° 37′ N.	56° 08′ W.	2078	East coast of Labrador
V-16-57	August 31, 1960	55° 35′ N.	58° 37′ W.	767–791	East coast of Labrador
V-16-58	September 1, 1960	55° 26′ N.	58° 09′ W.	95	East coast of Labrador
V-16-61	September 5, 1960	51° 18′ N.	56° 52′ W.	101	Strait of Belle Isle, Newfoundland
V-17-21	March 29, 1961	53° 23′ S.	70° 54.6′ W.	150	Strait of Magellan
V-17-70	May 18, 1961	40° 32′ S.	60° 19′ W.	57	Patagonian Shelf
V-17-71	May 18, 1961	40° 11′ S.	60° 27′ W.	44	Patagonian Shelf
V-17-100	June 13, 1961	44° 23′ S.	59° 53′ W.	166–177	Patagonian Shelf
V-17-RD12	June 13, 1961	44° 19′ S.	59° 52′ W.	183–366	Patagonian Shelf
V-17-RD14	June 19, 1961	38° 58′ S.	55° 17′ W.	595–642	Patagonian Shelf
V-17-RD29	September 4, 1961	60° 27′ N.	48° 31′ W.	326–366	South point of Greenland
V-18-8	February 4, 1962	36° 06′ S.	53° 18′ W.	278–282	East of Rio de la Plata
V-18-12	Unrecorded	47° 09′ S.	60° 38′ W.	424–428	Patagonian Shelf
V-18-42	April 25, 1962	34° 15′ S.	52° 22′ W.	40	East of Uruguay

ORDER STOLONIFERA HICKSON, 1883

FAMILY CLAVULARIIDAE HICKSON, 1894

GENUS *PACHYCLAVULARIA* ROULE, 1908

Pachyclavularia rosea (Studer, 1878)

Figures 1, 6E

For literature and description, see Molander (1929, pp. 24–28, 52–55, text figs. 9, 10, pl. 2, fig. 7, pl. 3, figs. 2–4).

MATERIAL EXAMINED: Four fragments, V-17-100, Patagonian Shelf, latitude 44° 23′ S., longitude 59° 53′ W., 166–177 meters, June 13, 1961.

DESCRIPTION: The largest fragment has a diameter of 20 mm. Each fragment consists of a thin basal membrane spread over sand grains which are luted together (tubes of a caddisworm?). The very rigid anthosteles (calyces) measure up to 6.5 mm. in height (fig. 1A). At the base they are up to 3 mm. wide; apically, they narrow, but at the tip they slightly widen again. Each has eight longitudinal ridges with intervening grooves. The anthosteles are irregularly distributed over the membrane. Some occur in close proximity to others (Molander, 1929, p. 53, "die Polypen sind basal oft zusammengewachsen"); in such a case one is usually smaller and seems to be younger. In some cases a young polyp arises from the lateral side of an older one (see fig. 1A).

The anthocodiae are completely retracted within the anthosteles, so the dimensions of the anthocodiae and the distribution of the spicules in them cannot be established. From freehand longitudinal sections through a zooid, it appears most probable that the proximal part of the anthocodia contains small, commonly blunt-ended rods, about 0.15 to 0.20 mm. long, which have very low spines or small knobs, whereas the distal part has nearly smooth spindles, 0.30 to 0.35 mm. long. Little can be said with certainty about the spicules in the tentacles.

The spicules in the stiff, thick-walled anthostele are closely spaced, broad, warty spindles and blunt-ended ovals or short cylinders. Most of them measure 0.18 to 0.30 mm. in length; a few are up to 0.35 mm. long. Their width is 0.07 to 0.12 mm. Quadriradiates are not rare (fig. 1B–E).

In the uppermost layer of the membrane the spicules are of the same type: wide, warty spindles and ovals, up to 0.30 mm. long; most of them are smaller than those occurring in the anthosteles (fig. 1F–I). In the lowest layer the spicules are more rod-shaped and mostly 0.10 to 0.20 mm. long; the prominences are higher (fig. 1J, K).

COLOR: The fragments are grayish brown.

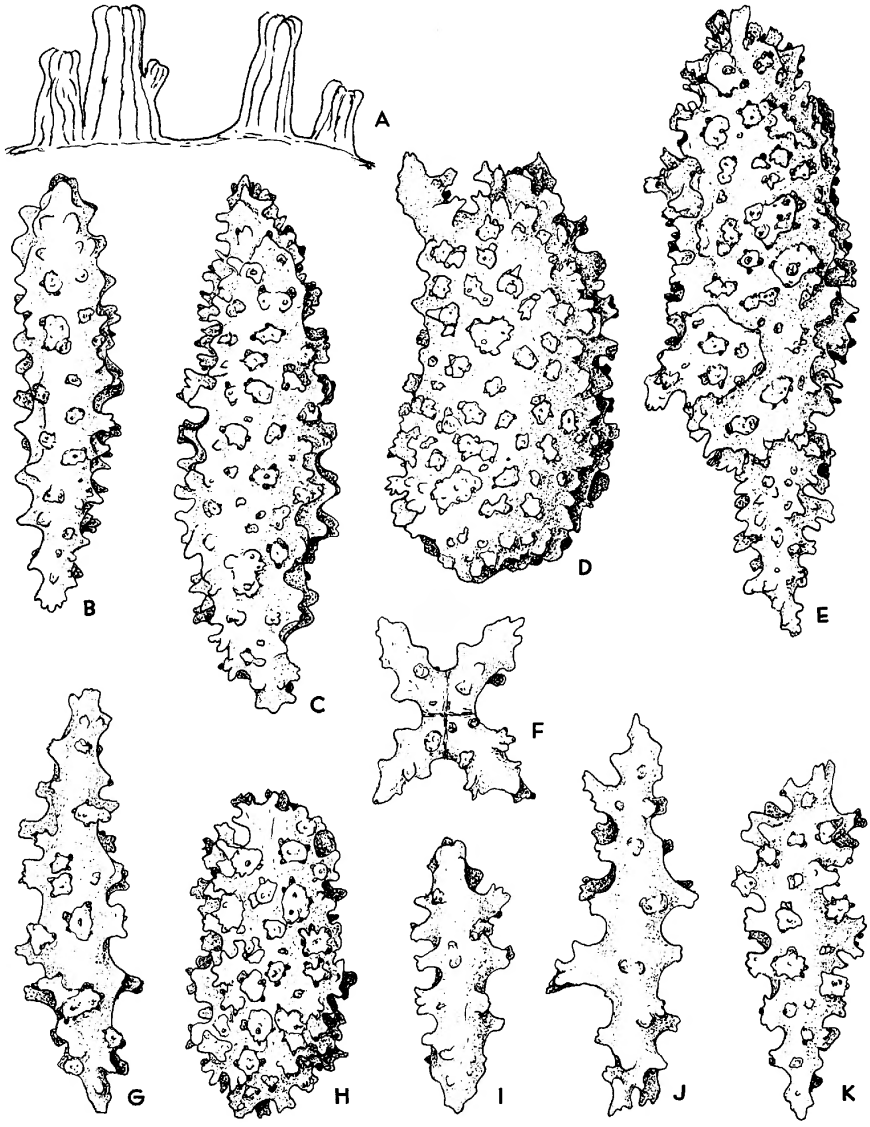

FIG 1. *Pachyclavularia rosea* (Studer). A. Polyps. B–E. Spicules from the anthostele. F–I. Spicules from uppermost layer of the membrane. J, K. Spicules from undermost layer of the membrane. A, ×2.5; B–K, ×240.

Previously recorded from northwest of Kergulen, Strait of Magellan, and Smyth Channel, south of West Falkland Island.

REMARKS: The genus *Pachyclavularia* is characterized by, among other

things, the intricate structure of the basal membrane, which forms cavities or cushion-like thickenings (cf. Roule, 1908, p. 165; Molander, 1929, p. 28; Verseveldt, 1960, p. 211). In the small fragments examined by me nothing is to be seen of this composite nature of the membrane. Molander (1929, pp. 52–55), who united the species *Clavularia rosea* Studer and *C. magelhaenica* Studer, described colonies collected by the Swedish Antarctic Expedition in 1901–1903, in which the remarkable structure of the membrane has been observed. The spicules of these colonies seem to agree with those in the specimens before me (cf. Molander's text fig. 10b with fig. 1F, I, K of the present paper). Also, because of this similarity I refer the "Vema" specimens to *P. rosea.* The wide, more or less oval spicules, however, were not mentioned by Molander. According to Studer (1878, p. 633), the color is rose-red; in *C. magelhaenica* it is orange-red; the specimens described herein are grayish brown. In spite of these differences, I refer the fragments to *P. rosea.* It is unfortunate that the material is insufficient for a more detailed examination. Moreover, in all polyps, the anthocodiae are withdrawn.

ORDER ALCYONACEA LAMOUROUX, 1816 (EMEND. VERRILL, 1866)

FAMILY ALCYONIIDAE LAMOUROUX, 1812

GENUS *ALCYONIUM* LINNÉ, 1758

Alcyonium haddoni Wright and Studer, 1889

Figures 2, 6C, D

For description, see Wright and Studer (1889, pp. 240–241, pl. 42, fig. 6); also cited by May (1899, p. 6; 1900a, p. 105; 1900b, p. 402), Lüttschwager (1926, p. 286), and Macfadyen (1936, p. 32).

MATERIAL EXAMINED: Two larger colonies and three very small ones, V-18-8, Atlantic Ocean, east of Rio de la Plata, latitude 36° 06′ S., longitude 53° 18′ W., 278–282 meters, February 4, 1962.

DESCRIPTION: The largest dimension of the specimen represented in figure 6C is 45 mm., measured from the tip of the left lobe to the tip of the lobe to the right at the top. The other colony measures 28 mm. in height; it is slightly flattened. The three small colonies are only about 5 mm. high; they grow on grayish tubes consisting of tiny sand grains joined together, the tubes measuring 2.5 mm. in diameter.

The colonies are hard; the lobes are short and thick. The basal part is destitute of polyps. In the larger specimens the polyps are completely retracted. Their place is indicated only by small pits, which do not have the shape of eight-rayed stars. In one of the small colonies a few anthocodiae protrude above a calyx with eight projecting knobs. These antho-

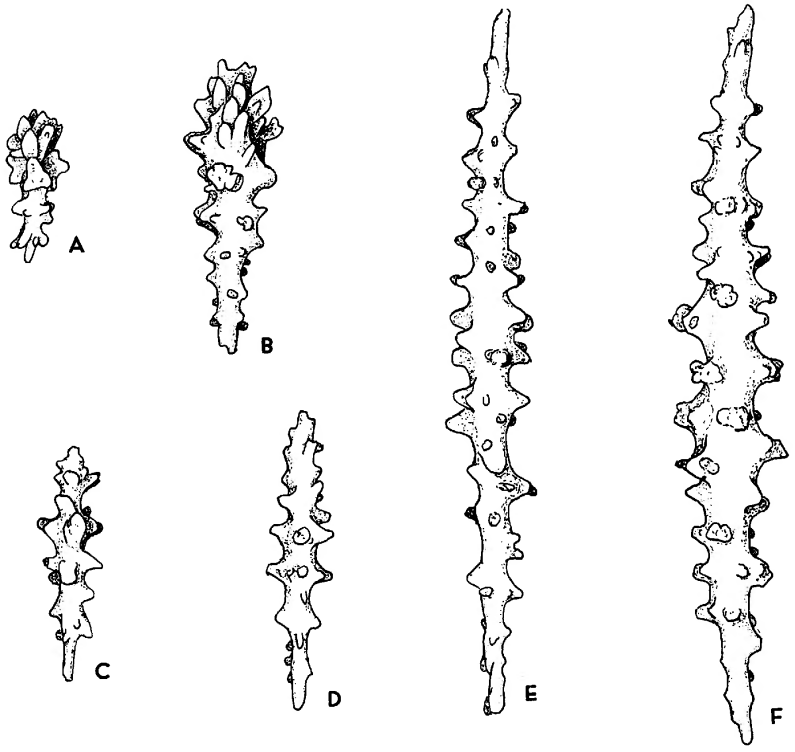

FIG. 2. *Alcyonium haddoni* Wright and Studer. A–D. Spicules from the cortex. E, F. Spicules from the interior. ×240.

codiae are grayish and they measure 0.70 to 0.80 mm. in height and 0.9 to 1.1 mm. in width. The armature consists of eight points of spindles, about 0.33 mm. long, and covered with low spines. Proximally, there is a crown, six to eight rows deep, and consisting of the same spindles.

The cortex contains clubs, 0.08 to 0.15 mm. long, in some cases up to 0.20 mm. (fig. 2A, B), and slender spindles or needles, 0.12 to 0.30 mm. long (fig. 2C, D). In the interior there are numerous spiny or warty spindles, 0.20 to 0.45 mm. long and 0.02 to 0.03 mm. wide (fig. 2E, F).

COLOR: The colonies are yellow-brown; the base is paler.

Previously recorded from Messier Canal, Chile, in a depth of 315 meters.

REMARKS: The colonies described above seem to be referable to *A. haddoni* Wright and Studer. In order to establish the correctness of my determination, I examined a fragment of one of the type colonies, originally collected by the Challenger Expedition, and now in the British

Museum (Natural History). I wish to tender my thanks to Dr. W. J. Rees of that Museum for placing this material at my disposal.

As a result of my examination I found the following: In the type specimen the spicules in the cortex are stronger, and especially the clubs are larger and have wider heads. Most of the clubs (excellently figured by Wright and Studer, 1889, pl. 42, fig. 6, the large clubs in the middle) measure 0.12 to 0.18 mm. in length, and a few are up to 0.23 mm. long. In addition, there are transitional forms between the clubs and spindles. These forms have broad, spiny heads and are 0.23 to 0.30 mm. in length.

In the interior there are spindles only, commonly 0.40 to 0.45 mm. long, in some instances up to 0.50 mm. long. They are covered with high spines (cf. Wright and Studer, 1889, pl. 42, fig. 6, the curved spindle to the right). Large spindles, with a length of 0.7 mm., as mentioned by Wright and Studer, were not noted on the present material.

The clubs and spindles as described above seem to be characteristic of the species. The more or less stellate forms as presented by Wright and Studer (1889, pl. 42, fig. 6, the two uppermost spicules) are very rare, and the four-rayed forms are not numerous.

Comparing these forms with the characteristics of the "Vema" specimens, we find that in the latter the clubs are distinctly smaller, with narrower heads; the cortical spindles and needles are much more numerous, and the spindles in the cortex and interior are more slender. In spite of these differences I refer the specimens to *A. haddoni.*

Alcyonium paessleri May, 1899

Figures 3, 4, 7C–F

For description, see May (1899, p. 6, fig. 1); see also Molander (1929, pp. 50–51, pl. 4, fig. 11).

Material Examined: a. One small colony, 14 mm. high, V-17-21B, Strait of Magellan, latitude 53° 23′ S., longitude 70° 54.6′ W., 150 meters, March 29, 1961. b. Four colonies (fig. 7F shows one of them), V-17-RD12, Patagonian Shelf, latitude 44° 19′ S., longitude 59° 52′ W., 183–366 meters, June 13, 1961. c. Two large specimens, one with retracted zooids (fig. 7C) and one with expanded zooids (fig. 7D), besides a very small specimen, V-17-RD14, slope of Patagonian Shelf, east-southeast of Cape Corrientes, latitude 38° 58′ S., longitude 55° 17′ W., 595–642 meters, June 19, 1961. d. One large colony (fig. 7E) and one small one, V-18-12, slope of Patagonian Shelf, east of Cape de Tres Puntas, latitude 47° 09′ S., longitude 60° 38′ W., 424–428 meters, date unrecorded.

Description of Specimens from V-17-RD14: Each of the larger colonies consists of a common basal membrane, from which several thick-

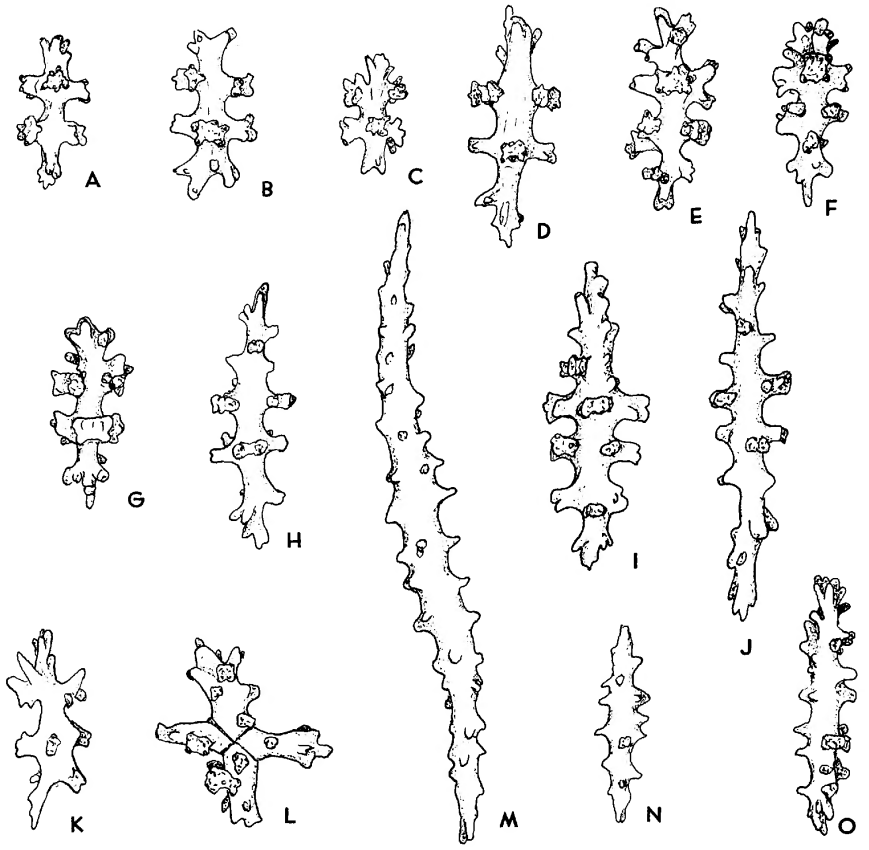

FIG. 3. *Alcyonium paessleri* May. Spicules from a specimen from V-17-RD14. A–E. Spicules from the cortex. F, G. Spicules from calyces. H–L. Coenenchymal spicules. M. Point spicule from an anthocodia. N, O. Spicules from the neck zone of a zooid. ×240.

enings or swellings arise, up to about 25 mm. in height. These wide "stems" may give off a few short, thick, knoblike branches. Stems and branches carry the zooids, but these also arise singly or in small groups from the basal membrane.

In the colony with retracted zooids (fig. 7C), the stems and branches are covered with rounded anthosteles (calyces), projecting obliquely upward. They are not retractile. The aperture is only a small, round hole at the top, without eight lobes or points.

In the colony with expanded polyps (fig. 7D), only a few polyps are retracted within calyces, the edges of which are provided with eight points.

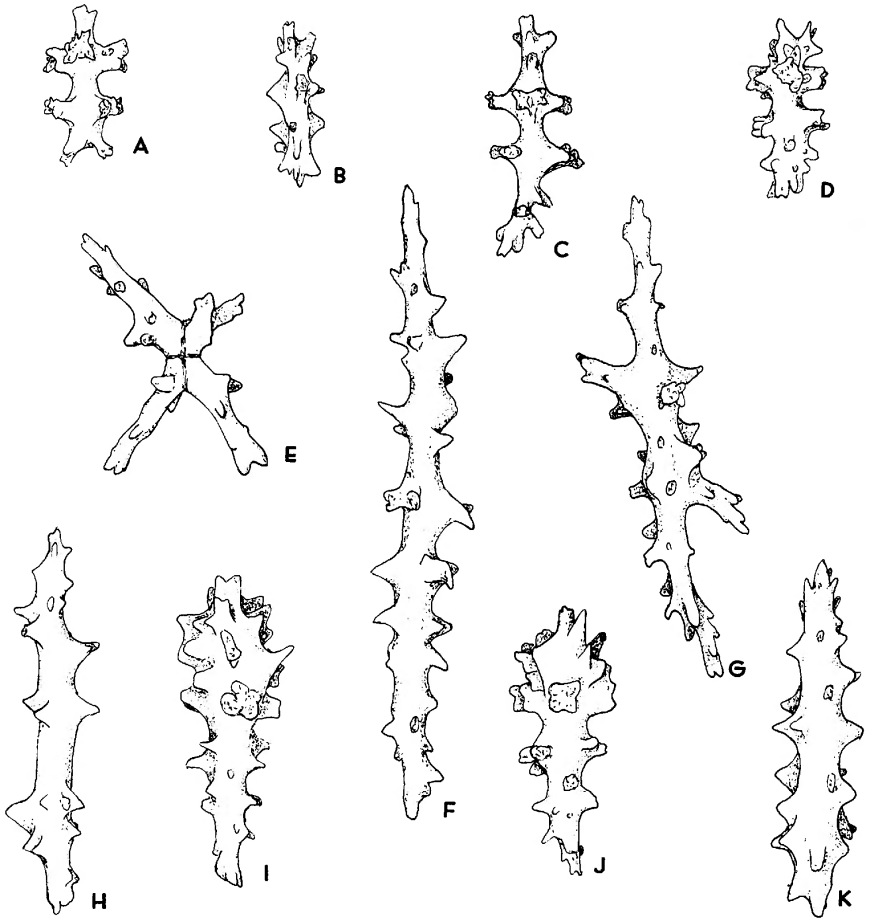

FIG. 4. *Alcyonium paessleri* May. Spicules from a specimen from V-18-12. A–D, H. Spicules from the cortex of the membrane. E–G. Spicules from the coenenchyme. I–K. Spicules from calyces. ×240.

Most of the zooids, however, are expanded. They measure 3 to 4 mm. in height, measured from the edge of the anthostele up to the base of the tentacles. Each of the anthocodiae consists of a proximal part, the neck zone, and a distal part, separated by a constriction. Both parts are about the same length and width, viz., 1.5 to 2 mm., and both have eight longitudinal ridges. The neck zone is closely packed with spiny or warty spindles (fig. 3N, O), 0.09 to 0.13 mm. long and usually transversely arranged. A few quadriradiates also occur. In the lowest part of this neck zone some of the spicules are club-shaped. The distal part of the anthocodia is widest at

the base, up to 2 mm., and measures 1.7 to 2 mm. in height. The armature of this part consists of a crown of about six to 10 rows of spindles which are superposed by eight points of chevroned or longitudinally arranged, spiny spindles (fig. 3M), mostly about 0.30 to 0.35 mm. long, but less commonly up to 0.45 mm. long; their width is only 0.02 to 0.03 mm. In some anthocodiae the crown is indistinct.

In the tentacle dorsum, there are many spiny spindles, irregularly distributed. In the basal portion they are up to about 0.24 mm. long; apically they become smaller, 0.07 to 0.10 mm. On each side of the tentacle there are six to eight short, thick pinnules, which are devoid of spicules.

The basal membrane of the colonies and the cortex of the stems contain typical capstans, 0.07 to 0.11 mm. long (fig. 3A–C), and small rods with two or three whorls of tubercles; length, 0.11 to 0.13 mm. (fig. 3D, E). In addition to these, the calyces have a few club-shaped spicules (fig. 3F, G), commonly 0.08 to 0.10 mm. long. In the coenenchyme, spindles and needles occur, up to 0.22 mm. long, which are provided with girdles of simple warts (fig. 3H–K). Quadriradiates (fig. 3L) occur everywhere in the colonies, but nowhere are they numerous.

COLOR: Grayish brown.

The specimens from the other localities differ from the colonies described above in the spiculation only. In a specimen from V-18-12, e.g., in the cortex of the basal membrane, the small capstans (fig. 4A) are in the minority. Most of the spicules are larger rods (fig. 4C, D), longer needles, and transitional forms to clubs. The clubs occurring in the cortex of the stem and the anthosteles are stronger, 0.10 to 0.20 mm. in length (fig. 4I, J). In the interior of the stem the spindles and needles are much longer, up to 0.45 mm.; in many cases they are irregularly branched (fig. 4E–G).

Previously recorded from Smyth Channel and the Graham region southeast of Seymour Island.

REMARKS: The identification of these specimens was somewhat tentative on my part, until I referred to Molander's publication of 1929. I was struck by the entire agreement of the spicules represented in his text figure 8, especially the small "Gürtelstäbe" in his figure 8b. These capstan-like spicules were not recorded by May (1899). In the colonies examined by me, the number of these capstans varies (cf. a above). Thus, it is quite possible that in the type material the capstans were not very numerous.

Molander (1929) was of the opinion that *Alcyonium antarcticum* Hickson (1900) and *Metalcyonium variabile* Thomson (1921) are identical with *A. paessleri*. I do not share this opinion. The shape of the colonies, the shape and dimensions of the polyps, and the absence of calyces are among the important points of difference.

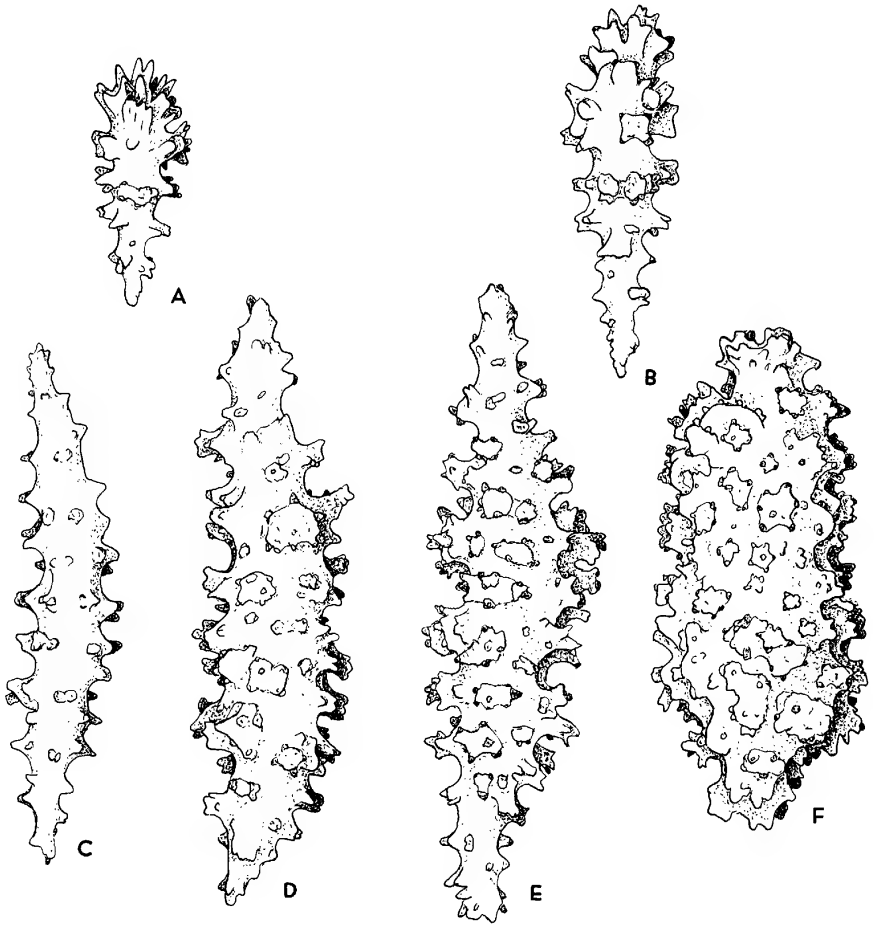

FIG. 5. *Alcyonium patagonicum* (May). A, B. Club-shaped spicules from the cortex. C–F. Spicules from the interior. ×240.

Alcyonium patagonicum (May, 1899)

Figures 5, 6A, B

For description, see May (1899, pp. 8–9, fig. 3); see also Kükenthal (1906, pp. 47–48).

MATERIAL EXAMINED: a. One small colony, V-15-102, between Strait of Magellan and Falkland Islands, latitude 52° 53.3′ S., longitude 65° 35′ W., 108 meters, March 5, 1959. b. Two small colonies, V-17-100, Patagonian Shelf, latitude 44° 23′ S., longitude 59° 53′ W., 166–177 meters, June 13, 1961.

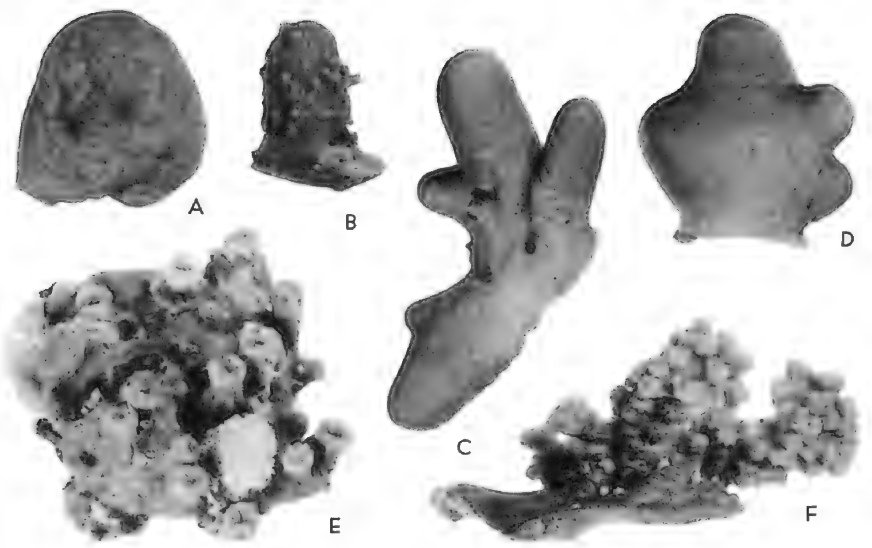

FIG. 6. A, B. *Alcyonium patagonicum* (May). C, D. *Alcyonium haddoni* Wright and Studer. E. *Pachyclavularia rosea* (Studer). F. *Pseudodrifa nigra* (Pourtalès). A–D, ×1.1. E, F, ×2.

DESCRIPTION: The following description is based on specimens from V-17-100. The larger of the two colonies (fig. 6A) measures about 22 mm. in height and in width and is flattened laterally. The basal strip, which is free of zooids, is only a few millimeters broad. The zooids are completely retracted within the coenenchyme.

The other, smaller, colony (fig. 6B) measures 18 mm. in height and about 10 mm. in width. It is cylindrical in shape, with a rounded tip, and is barely flattened laterally. At the base it is slightly wider, up to 15 mm. The grayish anthocodiae are partly or completely retracted within low, eight-rayed calyces.

The anthocodial armature consists of eight points of spindles rather densely covered with spines. The length of the spindles is 0.30 to 0.50 mm.; the width, 0.03 to 0.05 mm. Proximally there is a crown of five to nine rows of the same spindles. In the tentacles are numerous irregularly shaped, flat rods that are densely packed and transversely placed. The length of these spicules varies from 0.09 to 0.18 mm. In the neck zone of the polyps there are only a few spicules: small rods and spiny spindles, 0.07 to 0.15 mm. long.

The cortex contains clubs, 0.10 to 0.18 mm. long (fig. 5A, B), and warty spindles, 0.17 to 0.25 mm. long. In the interior there are thick

spindles, 0.14 to 0.36 mm. long and 0.03 to 0.05 mm. wide. They are provided with spines or warts (fig. 5C–E). In addition to these, ovals and cylinders occur, 0.24 to 0.30 mm. long and up to 0.06 mm. wide (without prominences), which are densely covered with complicated warts (fig. 5F).

COLOR: The largest specimen is light brown; the other is slightly more red.

The specimen labeled V-15-102 is grayish in color. It consists of a common basal part, which divides into two short and wide lobes. The maximum height of the colony is 17 mm.; the maximum width is 22 mm. One of the lobes is hillock-like; the other widens apically, so it is slightly club-shaped, but it is flattened laterally.

In the cortex the clubs may be larger, up to 0.29 mm. long, but most of them are 0.13 to 0.23 mm. long. In the coenenchyme the thick ovals and cylinders are less clear. In its spiculation this specimen seems to agree more with May's original specimens.

Previously recorded from about the same locality.

REMARKS: I refer the specimens to this species with some hesitation. The colonies are not quite club-shaped, as May (1899) and Kükenthal (1906) stated of the original specimens. The oval- and cylinder-shaped spicules in the coenenchymal mass were not mentioned by them. The color, too, is different. On the other hand, there are many points of agreement.

FAMILY NEPHTHEIDAE GRAY, 1862 (EMEND. UTINOMI, 1954)

GENUS *GERSEMIA* MARENZELLER, 1878

Gersemia fruticosa (Sars, 1860)

Figure 7A

For literature, synonymy, and description, see Utinomi (1961, pp. 230–235, text fig. 1, pl. 11, figs. 1–3).

MATERIAL EXAMINED: One small specimen, V-16-57, east coast of Labrador, somewhere off Hopedale, latitude 55° 35′ N., longitude 58° 37′ W., 767–791 meters, August 31, 1960.

DESCRIPTION: The colony has a total height of about 35 mm. It consists of a sterile stalk, about 3 mm. high and 4 mm. wide, with a basal membranous expansion, which has the shape of an irregular, hollow bag or bladder, about 13 mm. high and wide. Such a baglike appearance seems to be more or less characteristic of this species (cf. Molander, 1915, p. 62, 1918, p. 9; and Utinomi, 1961, p. 230). In our specimen the bag was covered with gray clay outside and inside.

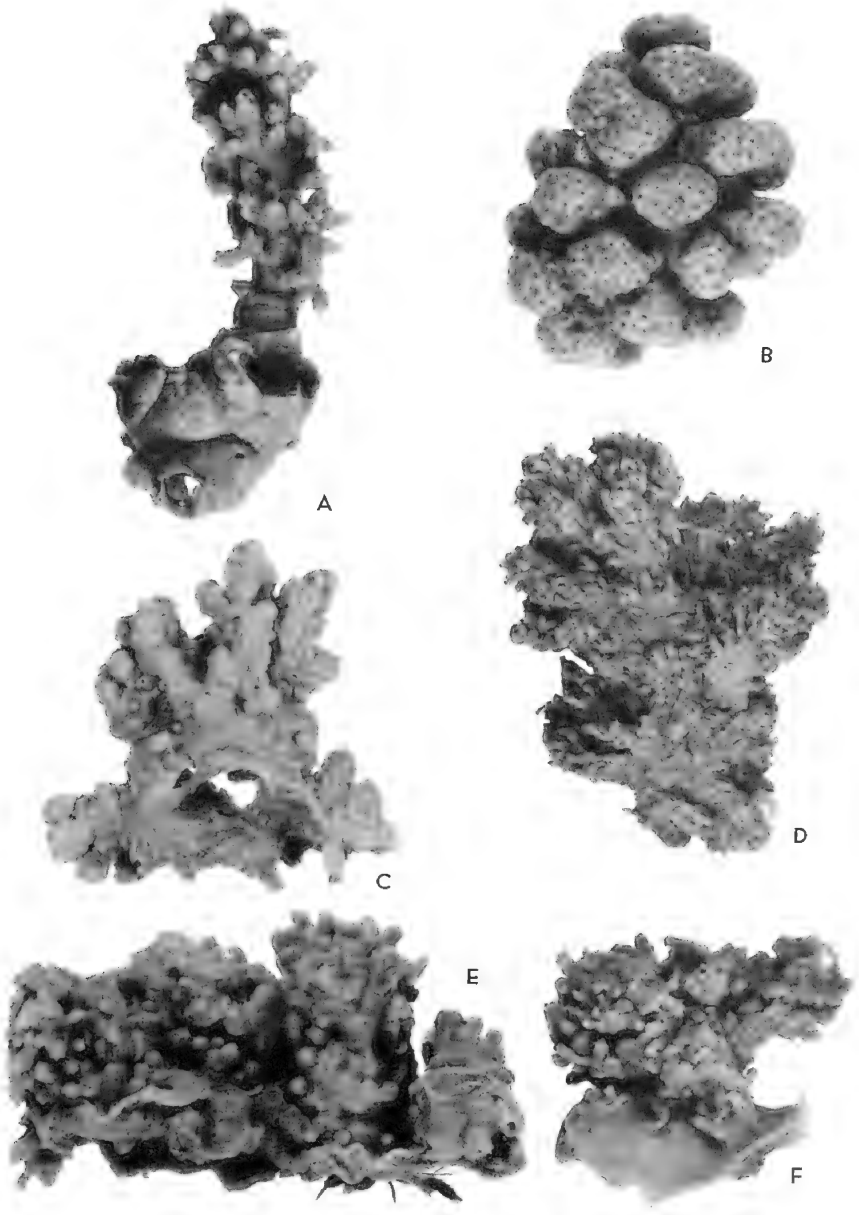

FIG. 7. A. *Gersemia fruticosa* (Sars). B. *Gersemia rubiformis* (Ehrenberg). C–F. *Alcyonium paessleri* May. A, B, ×2; C, D, ×⅔; E, ×1⅓; F, natural size.

The polyparium consists of a cylindrical stem, 20 mm. high and 3 mm. wide, slightly curved, and rather flabby. This stem gives off small twigs. From stem and twigs the polyps arise. The length of these varies from 2.5 to 4 mm. Each consists of a stalk and a wider anthocodia. The latter is about 1.5 mm. high and wide and has eight longitudinal ridges.

It is superfluous to describe the spicules.

COLOR: Basal membrane and sterile stalk are gray; stem, twigs, and polyps are light brown.

DISTRIBUTION: Circumpolar.

Gersemia rubiformis (Ehrenberg, 1834)

Figure 7B

For literature and synonyms, see Utinomi (1961, pp. 232–236, text figs. 2–3, pl. 11, figs. 4–6).

MATERIAL EXAMINED: a. Six colonies, the largest of which has a maximum diameter of 22 mm., V-16-58b, east coast of Labrador, latitude 55° 26′ N., longitude 58° 09′ W., 95 meters, September 1, 1960. b. Five colonies, V-16-61b, Strait of Belle Isle, Newfoundland, latitude 51° 18′ N., longitude 56° 52′ W., 101 meters, September 5, 1960.

DESCRIPTION: All colonies are strongly contracted. In this condition they resemble "a strongly lobate kidney," as Deichmann (1936, p. 63) very properly observed.

I may remark that the spiculation in the anthocodiae is much more developed than Utinomi (1961, fig. 2) has figured. There is a distinct crown five to six rows deep, superposed by numerous spindles arranged *en chevron.* Their length is about 0.20 to 0.30 mm., and the crown spicules may be up to 0.40 mm.

DISTRIBUTION: Circumpolar.

GENUS *DRIFA* DANIELSSEN, 1887

Drifa glomerata (Verrill, 1869)

For description and synonymy, see Utinomi (1961, pp. 239–241, text fig. 5, pl. 11, fig. 8).

MATERIAL EXAMINED: a. One colony, 20 mm. in total height, with a sterile stalk measuring about 10 mm. in height, V-16-52, east coast of Labrador, somewhere off Hopedale, latitude 55° 37′ N., longitude 56° 08′ W., 2078 meters, August 29, 1960. b. One colony, from which the base is missing, and a few fragments, V-16-58a, east coast of Labrador, latitude 55° 26′ N., longitude 58° 09′ W., 95 meters, September 1, 1960. c. Four colonies, dark brown in color, V-16-61a, Strait of Belle Isle, Newfoundland, latitude 51° 18′ N., longitude 56° 52′ W., 101 meters,

September 5, 1960. d. Three brown colonies, V-17-RD29a, south point of Greenland, latitude 60° 27′ N., longitude 48° 31′ W., 326–366 meters, September 4, 1961.

This well-known species has been sufficiently described by previous authors (e.g., Madsen, 1944, pp. 29–30, and Utinomi, 1961).

DISTRIBUTION: Circumpolar.

GENUS *DUVA* KOREN AND DANIELSSEN, 1883

Duva florida (Rathke, 1806)

For description and synonymy, see Utinomi (1961, pp. 236–238, text fig. 4, pl. 11, fig. 7).

MATERIAL EXAMINED: a. One small colony, V-16-49, south point of Greenland, latitude 60° 10′ N., longitude 47° 10′ W., 274 meters, August 21, 1960. b. Four colonies, V-17-RD29b, south point of Greenland, latitude 60° 27′ N., longitude 48° 31′ W., 326–366 meters, September 4, 1961.

DESCRIPTION: The largest dimension of the colony from V-16-49 is about 10 mm. The four colonies from V-17-RD29b are strongly flattened laterally. The largest of them measures 90 mm. in height and 55 mm. in maximum width. Stalk and stem are dark brown; the zooids are black.

The cortex of the sterile stalk has spicules like those figured by Utinomi (1961, fig. 4b). From the cortex of the stem and branches, and from the interior of stalk and stem, the spicules are absent.

DISTRIBUTION: Circumpolar.

GENUS *PSEUDODRIFA* UTINOMI, 1961

Pseudodrifa nigra (Pourtalès, 1868)

Figure 6F

For description and synonymy, see Utinomi (1961, pp. 241–244, text fig. 6, pl. 11, figs. 9–10); see also Bayer (1961, p. 55, figs. 9j, 10g–i).

MATERIAL EXAMINED: Three colonies, V-15-1, east coast of Georgia, latitude 31° 54′ N., longitude 79° 05′ W., 413 meters, October 29, 1958.

DESCRIPTION: The largest of the colonies consists of a mostly oval, slightly curved, basal membrane with diameters of 13 and 23 mm. On the upper side of this membrane two short stems arise, a little more than 10 mm. high, which bear the polyps.

The other colonies are very small, about 10 mm. in total height.

This species may be distinguished by its slender, spiny clubs in the anthocodiae and the "paler whitish ridges on the polyps" (Utinomi, 1961, p. 242).

DISTRIBUTION: Off Florida and Georgia.

ORDER GORGONACEA LAMOUROUX, 1816 (EMEND. VERRILL, 1866)

SUBORDER SCLERAXONIA STUDER, 1887

FAMILY ANTHOTHELIDAE BROCH, 1916

GENUS *TRIPALEA* BAYER, 1955

Tripalea clavaria (Studer, 1878)

For literature and synonymy, see Bayer (1961, pp. 70–71, fig. 14); see also Kükenthal (1924, p. 33) and Deichmann (1936, p. 85).

MATERIAL EXAMINED: a. Two larger specimens, of which one is broken, the largest measuring 70 mm. in length, plus one small colony and one fragment, V-17-70, Patagonian Shelf, latitude 40° 32′ S., longitude 60° 19′ W., 57 meters, May 18, 1961. b. Four complete colonies, the largest measuring 80 mm. in height, and four fragments, V-17-71, Patagonian Shelf, latitude 40° 11′ S., longitude 60° 27′ W., 44 meters, May 18, 1961. c. One specimen, about 40 mm. in length, V-18-42, east of Uruguay, latitude 34° 15′ S., longitude 52° 22′ W., 40 meters, April 25, 1962.

REMARKS: This species has been excellently described and figured by Studer (1878, pp. 667–668, pl. 5, fig. 38), Kükenthal (1919, pp. 85–89, figs. 32–34; the colony figured in his pl. 35, fig. 25, is not typical), and Bayer (1961).

DISTRIBUTION: The east coast of South America.

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